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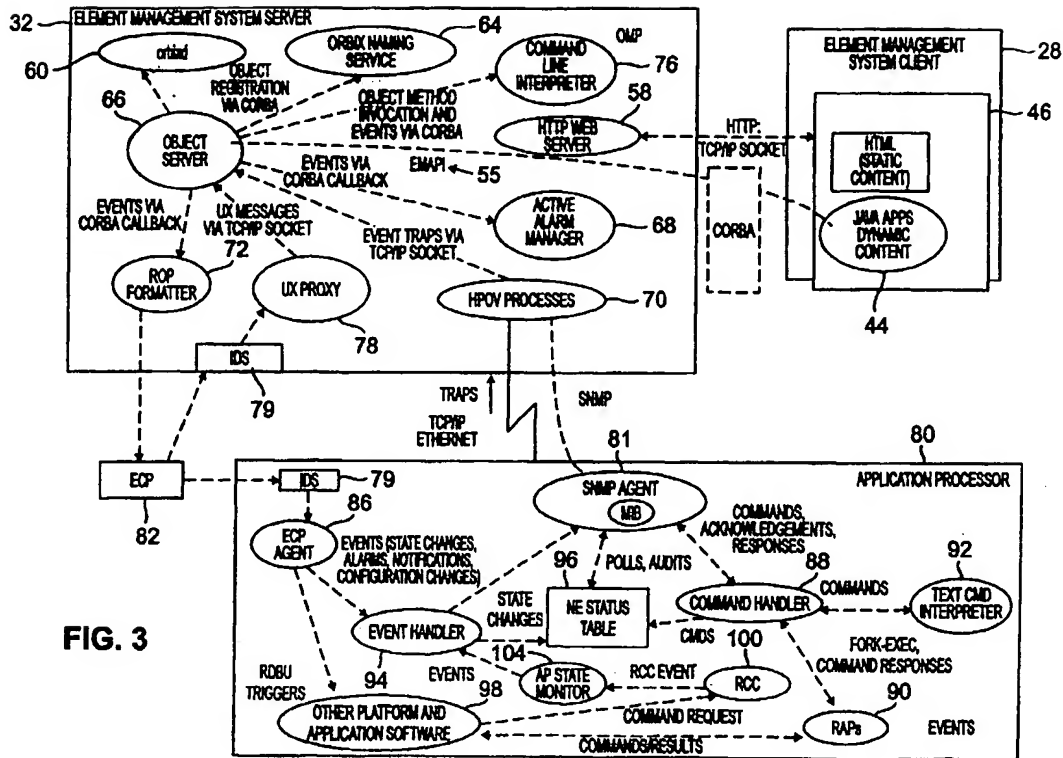
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(54) **Method for computer internet remote management of a telecommunication network element**

(57) In accordance with the invention, a method is provided for remotely managing a plurality of network element of a telecommunications network through a special communication link including a computer internet such as a local area network, the world\_wide web or the Internet. A management computer is connected to an element management system server through a communication link including the computer internet. At least one of the plurality of network elements is also coupled to the element management server through the computer internet and the at least one of the plurality of network elements is managed via communications conveyed through the element management server between the management computer and the at least one network element. Preferably, management is facilitated by the management server generating an interactive web page at a client workstation with objects associated with management of the at least one network element. The interactive web page is transmitting from the management server through the computer internet to the management computer and displayed at the interactive web page at the management computer for manage-

ment communications between the management computer and the network element. Objects of the interactive web page include objects associated with preferably all three of operation, administration and maintenance of the network element. The interactive web page includes detailed status summary page for each network element of the telecommunications network, a relatively high system status summary of all the plurality of network elements and a list of all active alarms within the telecommunications network. The plurality of network elements each have an associated applications processor with a management agent application for interfacing the element management server with the network element. The application processor includes a maintenance application for performing maintenance of the network element command request are interfaced from the element management server through the management agent application to the maintenance application to selectively perform maintenance tasks. The element management server is provided with application processor specific events and command acknowledgments.





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# EUROPEAN SEARCH REPORT

Application Number  
EP 99 30 3867

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cls)
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A	* abstract *	1, 7-13, 16	
	* page 5, line 12 - page 6, line 25 *		
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	* page 23, line 10 - page 25, line 12 *		
	* claims 19, 20 *		
	* figures 2-4 *		
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The present search report has been drawn up for all claims			
Place of search <b>THE HAGUE</b>		Date of completion of the search <b>10 September 2001</b>	Examiner <b>Cichra, M</b>
<p><b>CATEGORY OF CITED DOCUMENTS</b></p> <p>X: particularly relevant if taken alone Y: particularly relevant if combined with another document of the same category A: technical background O: non-written disclosure P: intermediate document</p> <p>T: theory or principle underlying the invention E: earlier patent document, but published on, or after the filing date D: document cited in the application L: document cited for other reasons &amp;: member of the same patent family, corresponding document</p>			

EPO FORM 1 (03/03/98) (P4/C01)



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#### CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing more than ten claims.

- ☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims and for those claims for which claims fees have been paid, namely claim(s):
- ☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims.

#### LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

- ☒ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.
- ☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.
- ☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:
- ☐ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:



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# EUROPEAN SEARCH REPORT

Application Number  
EP 99 30 3867

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A	MEER DE H ET AL: "TUNNEL AGENTS FOR ENHANCED INTERNET QOS" IEEE CONCURRENCY, IEEE SERVICE CENTER, PISCATAWAY, NY, US, vol. 6, no. 2, 1 April 1998 (1998-04-01), pages 30-39, XP000752815 ISSN: 1092-3063 * the whole document *	14	TECHNICAL FIELDS SEARCHED (Int. Cl. 6)
The present search report has been drawn up for all claims			
Place of search <b>THE HAGUE</b>		Date of completion of the search <b>10 September 2001</b>	Examiner <b>Cichra, M</b>
<b>CATEGORY OF CITED DOCUMENTS</b> X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technical background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

EPO Form 1505 (02/01) (P4001)



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**LACK OF UNITY OF INVENTION  
SHEET B**

Application Number

EP 99 30 3867

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

**1. Claims: 1-13,16**

Method for managing network elements from a management computer via the Internet via a management server, where the

- management server generates an interactive WEB-page associated with management of a network element
- management server transmits the above WEB-page to the management computer via the Internet
- interactive WEB-page contains a menu of individual maintenance unit command options.

**2. Claim : 14**

Method for managing network elements from a management computer via the Internet, where the

Internet is the World Wide Web and JAVA applications are run on both the management computer and the managed elements.

**3. Claim : 15**

Method for managing network elements from a management computer via the Internet, where the

network element has a management agent responding to various actions and the step of managing includes correlation of responses from the agent with the actions which caused the responses.

**4. Claims: 17,20,21**

Method for managing network elements from a management computer via the Internet, where the

- network element has a management agent application and
- polling requests are received from a plurality of management computers and
- multiple polling requests for the same attributes are treated as if they were only one request.

**5. Claims: 18,19**

Method for managing network elements from a management computer via the Internet, where the



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**LACK OF UNITY OF INVENTION  
SHEET B**

Application Number  
**EP 99 30 3867**

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

access from the management computer to the management server is restricted by a password and encryption.

**6. Claim : 22**

Method for managing network elements from a management computer via the Internet, where a

list of active alarms is maintained for each network element and updated upon occurrence of either one of actuation of a new alarm and clearing of a former alarm.

**7. Claims: 23-33**

Providing distributed network element management by selectively running a management application at a plurality of workstations,

- the workstations being connected to an element management server via the Internet,
- the element management server being connected to the managed network elements via a management agent application.



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Application Number  
EP 99 30 3867

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (In.Cls)
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Y	US 5 751 914 A (COLEY BRETT ANGUS ET AL) 12 May 1998 (1998-05-12) * abstract * * column 1, line 36-54 * * column 4, line 31-50 * * claims 1-10 * * figure 3 *	15	
A	US 5 748 098 A (GRACE ANDREW) 5 May 1998 (1998-05-05) * abstract * * column 2, line 50 - column 3, line 10 * * column 4, line 13-28 * * claims 1,8-11,14 *	15	
A	WO 97 44937 A (CABLETRON SYSTEMS INC) 27 November 1997 (1997-11-27) * abstract * * page 3, line 22 - page 4, line 12 * * page 12, line 9 - page 13, line 2 * * claims 6,14,21,26 * * figure 6 *	15	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (In.Cls)
Place of search <b>THE HAGUE</b>		Date of completion of the search <b>10 September 2001</b>	Examiner <b>Cichra, M</b>
<p><b>CATEGORY OF CITED DOCUMENTS</b></p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technical background O : non-technical disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons</p> <p>&amp; : member of the same patent family, corresponding document</p>			

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# EUROPEAN SEARCH REPORT

Application Number  
EP 99 30 3867

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A	LIU H ET AL: "WWW-BASED INTERNET RESOURCE MANAGEMENT SYSTEM" NOMS '98. 1998 IEEE NETWORK OPERATIONS AND MANAGEMENT SYMPOSIUM. NEW ORLEANS, LA, FEBR. 15 - 20, 1998, IEEE NETWORK OPERATIONS AND MANAGEMENT SYMPOSIUM, NEW YORK, NY: IEEE, US, vol. 1 CONF. 10, 3 November 1997 (1997-11-03), pages 11-20, XP000799756 ISBN: 0-7803-4352-2 * the whole document *	17,20,21,23	TECHNICAL FIELDS SEARCHED (Int.Cl.6)
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 10 September 2001	Examiner Cichra, M
CATEGORY OF CITED DOCUMENTS		T: theory or principle underlying the invention E: earlier patent document, but published on, or after the filing date O: document cited in the application L: document cited for other reasons A: member of the same patent family, corresponding document	
X: particularly relevant if taken alone Y: particularly relevant if combined with another document of the same category A: technological background O: non-written disclosure P: intermediate document			

EP FORM 1501 (01-02) (P.0400)



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# EUROPEAN SEARCH REPORT

Application Number  
EP 99 30 3867

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The present search report has been drawn up for all claims			
Place of search <b>THE HAGUE</b>		Date of completion of the search <b>10 September 2001</b>	Examiner <b>Cichra, M</b>
<b>CATEGORY OF CITED DOCUMENTS</b> X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : international background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons A : member of the same patent family, corresponding document	

EPO FORM 1503 (02.02.99) (P.04/01)



**European Patent  
Office**

## EUROPEAN SEARCH REPORT

**Application Number**  
**EP 99 30 3867**

DOCUMENTS CONSIDERED TO BE RELEVANT			
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P, X	ANONYMOUS: "Method for Agent Construction" RESEARCH DISCLOSURE, vol. 41, no. 410, 1 June 1998 (1998-06-01), XP002177150 Havant, UK, article No. 41085 * the whole document *	22	
X	ANDERSON J M: "DISTRIBUTED NETWORK MANAGEMENT IN AN INTERNET ENVIRONMENT" IEEE GLOBAL TELECOMMUNICATIONS CONFERENCE. PHOENIX, ARIZONA, NOV. 3 - 8, 1997, GLOBAL TELECOMMUNICATIONS CONFERENCE (GLOBECOM), NEW YORK, IEEE, US, vol. 1, 3 November 1997 (1997-11-03), pages 180-184, XP000737531 ISBN: 0-7803-4199-6 * the whole document *	23	TECHNICAL FIELDS SEARCHED (Int.Cl.8)
Y A		24-26, 31 27-30, 32, 33	
The present search report has been drawn up for all claims			
Place of search <b>THE HAGUE</b>		Date of completion of the search <b>10 September 2001</b>	Examiner <b>Cichra, M</b>
CATEGORY OF CITED DOCUMENTS X: particularly relevant if taken alone Y: particularly relevant if combined with another document of the same category A: technical field background O: non-essential disclosure P: intermediate document		T: theory or principle underlying the invention E: earlier patent document, but published on, or after the filing date D: document cited in the application L: document cited for other reasons A: member of the same patent family, corresponding document	



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# EUROPEAN SEARCH REPORT

Application Number  
EP 99 30 3867

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl. 8)
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A	* the whole document *	18,19, 27-30, 32,33	
			TECHNICAL FIELDS SEARCHED (Int. Cl. 8)
The present search report has been drawn up for all claims			
Place of search <b>THE HAGUE</b>		Date of completion of the search <b>10 September 2001</b>	Examiner <b>Cichra, M</b>
<p><b>CATEGORY OF CITED DOCUMENTS</b></p> <p>X : particularly relevant if taken alone  Y : particularly relevant if combined with another document of the same category  A : technological background  O : non-written disclosure  P : intermediate document</p> <p>T : theory or principle underlying the invention  E : earlier patent document, but published on, or after the filing date  D : document cited in the application  L : document cited for other reasons</p> <p>&amp; : member of the same patent family, corresponding document</p>			

EPO FORM 1500 (01.01.99) (PUBLISHED)

**ANNEX TO THE EUROPEAN SEARCH REPORT  
ON EUROPEAN PATENT APPLICATION NO.**

EP 99 30 3867

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are all contained in the European Patent Office EDP file on  
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10-09-2001

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EPO FORM P003

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

**ANNEX TO THE EUROPEAN SEARCH REPORT  
ON EUROPEAN PATENT APPLICATION NO.**

EP 99 30 3867

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